Indian and Northern Affairs Canada
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University Education and Economic Well-Being: Indian Achievement and Prospects

Canada

91-06019/

UNIVERSITY EDUCATION AND ECONOMIC WELL-BEING: INDIAN ACHIEVEMENT AND PROSPECTS

by

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October, 1990

Published under the authority of the
Hon. Tom Siddon, P.C., M.P.,
Minister of Indian Affairs and Northern Development
Ottawa, 1990.

QS-3493-000-EE-A1

Catalogue No.: R32-102/1990E
ISBN 0-662-18134-4

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Cette publication est également disponible en français sous le titre:

Études universitaires et bien-être économique: Succès et perspectives d'avenir des Indiens

The authors gratefully acknowledge the people at Statistics Canada and the Department of Indian Affairs and Northern Development who reviewed sections of this report, particularly George Mori and John Hurnard.

Thanks is also due to Darrell Buffalo of QASR who contributed many conscientious hours to data verification and computer graphics.

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UNIVERSITY EDUCATION AND ECONOMIC WELL-BEING: INDIAN ACHIEVEMENT AND PROSPECTS

ABSTRACT

Innovative measures are employed to assess the extent to which Indians participate and succeed at university and the extent to which expected economic benefits of a university degree are being realized by Indian graduates. Controls to account for observed differences between Indians and non-Indians include high school success, geographical variation in labour market opportunity, and work experience. Consideration is also given to the field of study. The results indicate that the comparatively low number of Indians with a degree is largely due to their low high school matriculation rates and higher enrolment in non-university programs. For Indians reaching university, success rates are about one-half that of non-Indians. Indians with a degree show markedly higher median incomes and labour force activity rates compared with Indians with a high school diploma. Moreover, the economic gains accompanying a degree are higher for Indians than non-Indians. Nevertheless, non-Indian degree holders enjoy more favourable labour force activity rates, with Indians having a median income of about two-thirds that of non-Indians. While a portion of these disparities can be explained by differences in work experience and labour market opportunity, substantial differences remain in median income and unemployment rates and these require further investigation.

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UNIVERSITY EDUCATION AND ECONOMIC WELL-BEING: INDIAN ACHIEVEMENT AND PROSPECTS

HIGHLIGHTS

University Participation and Success:

* Based on the 1986 Census of Canada, non-Indians are three times more likely than Indians to attend university and seven times more likely to earn a degree.

* The poor participation and success rates in the Indian population are associated with their relatively poor high school completion rates. Only one-quarter of the Indian population completes high school, compared to one-half of the non-Indian population.

* Only 23% of Indians who complete high school go on to university, compared to 33% of non-Indians.

* Of those who commence university studies, about 25% of Indians earn a degree, compared to about 55% of non-Indians.

Economic Well-Being:

* Indian people can realistically expect greater employment opportunities and higher incomes to follow a university degree. As the level of education increases from less than high school to a university degree, the labour force participation rate more than doubles from about 38% to 87%, the employment rate triples from 23% to 77%, and unemployment drops from 39% to 12%.

* The differences in labour force activity between Indians and non-Indians decreases as the level of education increases. This means that the relative gain in economic well-being is greater for Indian people than non-Indians.

* Median income also rises with the level of education. With less than high school, the median income among Indians is $9,694. With a university degree, that figure rises to $21,275.

* Unlike labour force activity rates, the gap in median income between Indians and non-Indians does not decrease as the level of education increases. Indians consistently earn about two-thirds that of non-Indians, regardless of the level of education.

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UNIVERSITY EDUCATION AND ECONOMIC WELL-BEING: INDIAN ACHIEVEMENT AND PROSPECTS

INTRODUCTION

University education is an increasingly important factor in Canada's future well-being. In the international arena, the currency of competition is neither the dollar nor the yen. It is knowledge. Accordingly, many Canadians are now asking difficult but important questions about the supply of future university graduates that will be required to fill future management and professional positions in industry, government, and academia. The long-term health of these sectors depends on the answers, as does the level of prosperity enjoyed by each Canadian.

University education is no less important for the well-being of Canada's registered Indian[1] people and their communities. Two decades ago, the federal government delivered basic social and community services. Now Indian bands and tribal councils are increasingly responsible for service delivery. Indian bands and affiliated organizations delivered 69 percent of DIAND's program budget in 1988-89, up from 20 percent in 1971-72. As the focus of Indian-government relations shifts from basic needs to land claims, self-government, and economic self-reliance, an ever-increasing supply of skilled and talented Indian people will be needed. The progress that Indian people make towards a quality future will depend on their available innovative and intellectual resources to fill roles in a variety of social, cultural, and economic pursuits. As McLachlan (1986: 272) observes, "it is naive to believe that outside consultants, lawyers, and DIAND can fully or even adequately constitute substitutes for expertise that is lacking in the community itself".

University education is also important to individual Indians. In terms of meeting their basic needs, the results of the 1986 Census confirmed that Indians who have earned a degree are more likely to be employed and receive a higher income (these data will be presented later). Beyond providing a greater opportunity for self-reliance, university education prepares young people by equipping them "with the knowledge, skills, abilities, and self-confidence that will serve them well into the next century" (Whiteman; Jules, 1988: 3). With this preparation, Indian university graduates will become role models for many in the next generation of young Indians.

The importance of university education to Indian people is well recognized both by native leaders and government. The widespread interest in university education among Indian people was highlighted by the testimony given to the Inquiry on DIAND's Post-Secondary Student Support Program conducted by the Standing Committee on Aboriginal Affairs. This committee found "universal agreement on the significant potential of post-secondary education to benefit aboriginal people in the individual and collective sense" (SCAA, 1989: 26). According to George Watts, a witness to the committee and

president of the Nuu-chah-nulth Tribal Council, "if you talk to any Indian leader in this country, you will not get an argument about the value post-secondary education has brought to our communities ... the real changes are happening because our people are going to university and taking their skills and using them, with the knowledge of our old people, to start to make meaningful changes in our community" (SCAA, 1989: 25).

The widespread recognition of the importance of education has generated programs and policies to increase the number of Indian university graduates. In this paper, the extent to which Indians participate and succeed at university is assessed. One key to increasing the number of university graduates is the extent to which prospective students perceive they will benefit from earning a degree[2]. In the absence of perceived benefits, the success of other efforts directed at encouraging greater participation and success at university will be limited. Accordingly, this paper also assesses the extent to which the expected economic benefits of a university education are being realized by Indian graduates.

Census Data

The 1986 Census is an important source of data because it allows direct comparisons to be made between the Indian and non-Indian populations on a number of socio-economic and demographic variables. Most of the data in this study are taken from Indian and Northern Affairs (INAC) Customized Data which is aggregated from the 1986 Census.

There are limitations involved in the use of these data. The 1986 Census did not include the school attendance variable which was a part of earlier Censuses. This creates difficulties in analyzing success rates and aspects of economic well-being. Also, INAC Customized Data cross-tabulates highest level of schooling by total income, but not employment income. This limits an analysis of the influence of career path on economic well-being. Finally, 136 Indian reserves did not participate in the Census. This means that combined statistics for on- and off-reserve Indians under-represent the on-reserve population. Despite these limitations, the Census is the most comprehensive and reliable source of data available on education, ethnicity, and economic well-being.

The paper is divided into two sections:

1. **University Participation and Success:** the relative extent to which Indian people commence university programs and earn degrees; and

2. **Economic Well-Being:** the economic well-being associated with a university education relative to other Indians with lower levels of education[3] and non-Indian degree holders.

In these sections, a variety of controls are introduced in order to develop a picture that goes beyond basic statistics to identify possible factors accounting for observed differences between Indians and non-Indians. Controls include high school success rates, labour market opportunity, and work experience. Consideration is also given to the field of study.

In the absence of recent and reliable administrative records on Indians with a university education, the paper seeks to provide an initial picture of Indian achievement and prospects in the context of university education. To this end, innovative participation and success rates were developed. The primary source of data for this study is the 1986 Census of Canada. All statistics cited in the paper refer to "adult" populations which are made up of individuals who were aged 15 years or older in 1986. The term "degree" in this paper does not include those with a university diploma or a certificate. Some data are also taken from the 1981 Census of Canada and from DIAND administrative databases. Conclusions are drawn at the national level and the reader should keep in mind that the conclusions cannot be generalized to specific regions.

Finally, Indians are frequently compared with non-Indians in this paper. For many people, non-Indian conditions form the standard against which progress by Indians is assessed. However, it should be recognized that such interpretations limit the notion of success to the dimensions and degrees of success commonly held by non-Indians. Nevertheless, non-Indian statistics can be employed as a convenient frame of reference against which changes in the Indian population can be measured.

PARTICIPATION AND SUCCESS AT UNIVERSITY

Based on administrative records, Indian participation at university has increased markedly over the past decade and a half. This fact is illustrated in Figure 1. However, these records do not answer many important questions about participation and success in university programs. Particularly:

> How do Indians compare to other Canadians in terms of overall rates of participation and success at university programs?
>
> Given that relatively few Indians complete high school, to what extent do high school graduates participate and succeed?
>
> How do Indians who commence university programs fare compared with their non-Indian counterparts?

UNIVERSITY ENROLMENT
REGISTERED INDIAN POPULATION

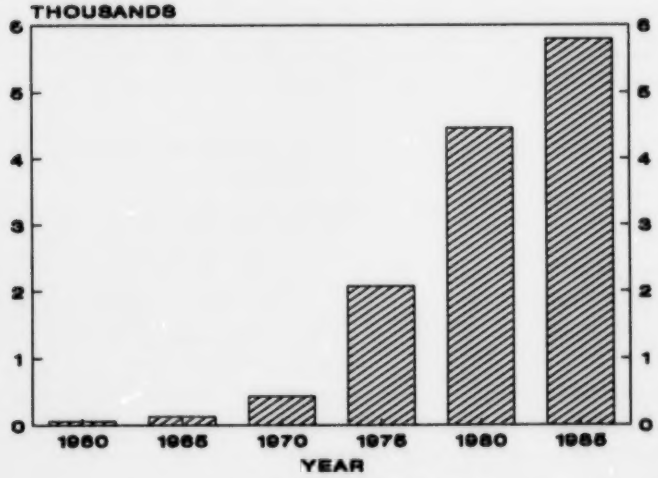

FIGURE 1

Source: Basic Departmental Data, 1989-89

In this section, these questions are examined using five indicators of participation and success. Data limitations restrict the measure of success to earning a degree. As some university programs terminate with a diploma or a certificate, success rates in this paper underestimate program completion. Each indicator is presented in turn and the section

concludes with a discussion of the findings, as summarized below:

Participation and Success	Indicator
In the Overall Population	- Crude Participation Rate - Crude Success Rate
Among those Eligible for University	- Eligible Participation Rate - Eligible Success Rate
Among those who Attempted University	- Attempted Success Rate

Crude Rates

Crude rates express the frequency of an occurrence relative to the overall population. Accordingly, the Crude Participation Rate in this paper represents the proportion of the adult population that has ever attended university. The Crude Success Rate at university expresses the number of people that have earned a degree as a proportion of the entire population.

Ideally, success rates only consider those not attending school. This is because students who are attending school can be considered neither successful nor unsuccessful. Unfortunately, the 1986 Census of Canada did not record whether the respondents were attending school at the time of enumeration. Therefore, the success rates in this paper include many students who will eventually earn a degree. As a result, the success rates underestimate the actual proportion of adults who earn degrees.

In 1986, the Crude Participation Rate for registered Indians was 6.2 percent. For non-Indians, 18.5 percent had at least some university (Figure 2). This means that almost three times the proportion of non-Indians as Indians have attended university at some time.

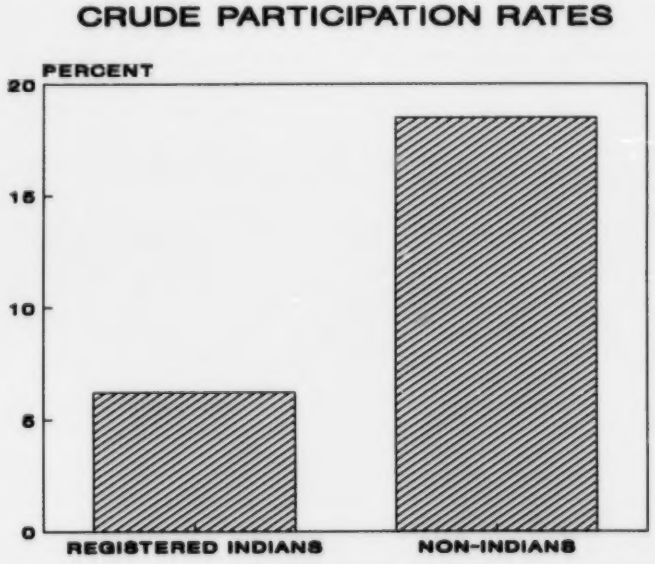

FIGURE 2

Source: 1986 Census of Canada

The Crude Success Rate indicates that 1.3 percent of registered Indians had a university degree in 1986, compared with 9.6 percent of non-Indians in the same year (Figure 3). In other words, members of the non-Indian population are about 7.4 times more likely to successfully complete a degree program than Indian people.

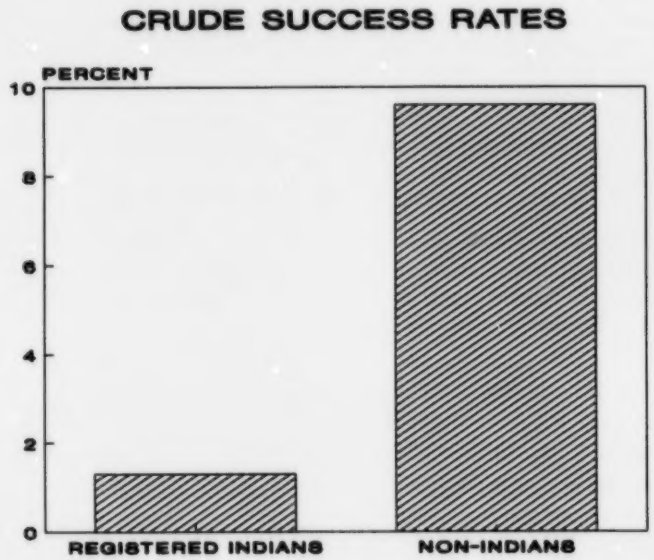

FIGURE 3

Source: 1986 Census of Canada

Eligible Rates

The Crude Success and Participation Rates indicate a very large discrepancy between the Indian and non-Indian populations. Non-Indians were about three times more likely to attempt university and over seven times more likely to have earned a degree. However, crude rates mask some important reasons for these differences. Foremost among these reasons is that the denominators used to calculate the crude rates include persons who are not eligible[4] to attend university. This includes individuals who will never qualify for university studies, as well as high school students who have yet to graduate.

Including persons who are not eligible for university studies would not be a problem if Indians and non-Indians had identical rates of success in graduating from high school. However, this is not the case. Until recently, Indians have had relatively high dropout[5] rates in high schools. In 1960, about three percent of on-reserve Indians reached their

final year of high school[6] (see Figure 4). While this greatly increased to over 44 percent in 1988, high school completion rates among Indians are still much lower than among other Canadians. The 1986 Census indicates that more than twice as many on-reserve Indians as other Canadians are functionally illiterate[7] and only 25 percent of the Indian population has at least a high school diploma or equivalent level of education compared with more than 50 percent of non-Indians.

The poor success of Indian people at earning a high school diploma means that relatively fewer Indians are eligible to attend university. This fact might may account for the large discrepancy between the Indian and non-Indian crude rates for participation and success. If proportionally fewer Indians are eligible to attend university, then fewer can succeed. In the next analysis, the effect of this discrepancy between Indians and non-Indians was explored by controlling for the influence of early school performance.

ON-RESERVE INDIANS IN GRADE 12 OR 13 OF THOSE 12 OR 13 YEARS EARLIER IN GRADE 1

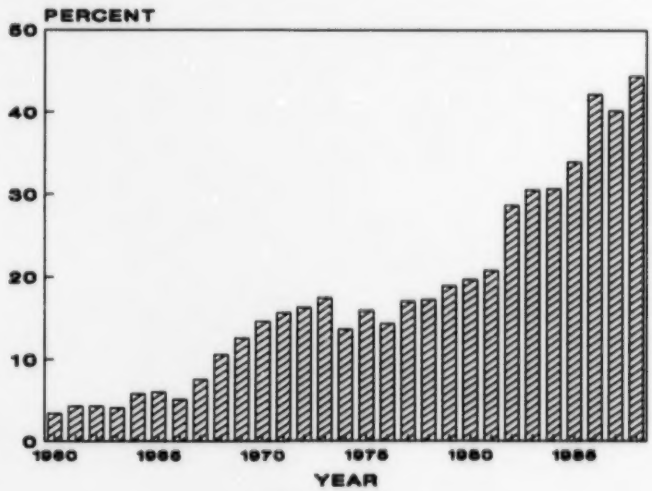

FIGURE 4

Source: Basic Departmental Data, 1989:36

To control for early school performance, two indicators of participation and success were developed: the Eligible Participation Rate and the Eligible Success Rate. These rates express participation and success at university relative to the population of individuals who had at least a high school diploma at the time of enumeration. Admittedly, a high school diploma does not necessarily qualify one for university, just as the lack of a diploma does not necessarily disqualify someone. However, these indicators were adopted as

PSSSP

DIAND's Post-Secondary Student Support Program is designed to encourage Indian people to undertake and complete a post-secondary education. If PSSSP is successful, then compared to other aboriginal people who are not eligible for PSSSP, Indians should have higher Eligible Participation and Success Rates.

At all post-secondary institutions, the Eligible Participation Rate among off-reserve Indians is indeed higher than among other aboriginal people residing off-reserve: 83.3 versus 76.8. In fact, Indian participation is even higher than the non-Indian rate of 77.0. However, the Eligible Success Rate among Indians is lower than other aboriginal people: 22.3 versus 27.0. Apparently, PSSSP increases participation but is less successful in addressing program completion. This study is described in detail in Annex I.

a reasonable proxy measure of the eligible population for comparative purposes.

The Eligible Participation Rate for Indians who have earned at least a high school diploma is 22.6 percent. In comparison, 33.2 percent of eligible Non-Indians have at least some university (Figure 5). What is important about these results is that eligible non-Indians were 1.5 times as likely to attend university as Indians. This difference is considerably smaller than that indicated by the Crude Participation Rate. This fact suggests that relatively lower high school completion rates among Indians account for a large part of the difference in the Crude Participation Rates between Indians and non-Indians.

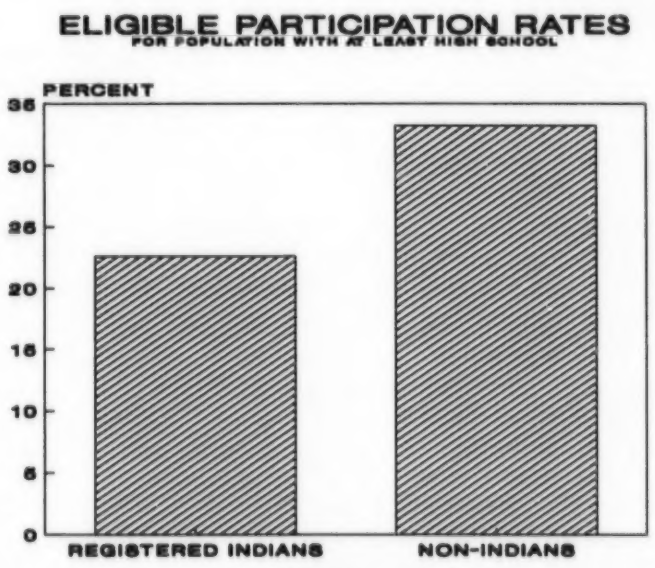

FIGURE 5

Source: 1986 Census of Canada

The Eligible Success Rate among Indians is 4.8 percent. In comparison, 17.3 percent of eligible non-Indians reportedly completed a degree program (Figure 6). In other words, non-Indians who have at least a high school diploma are 3.6 times as likely to successfully complete a degree program as Indians. While this represents a substantial difference, it is less than half that indicated by the Crude Success Rate in which non-Indians were more

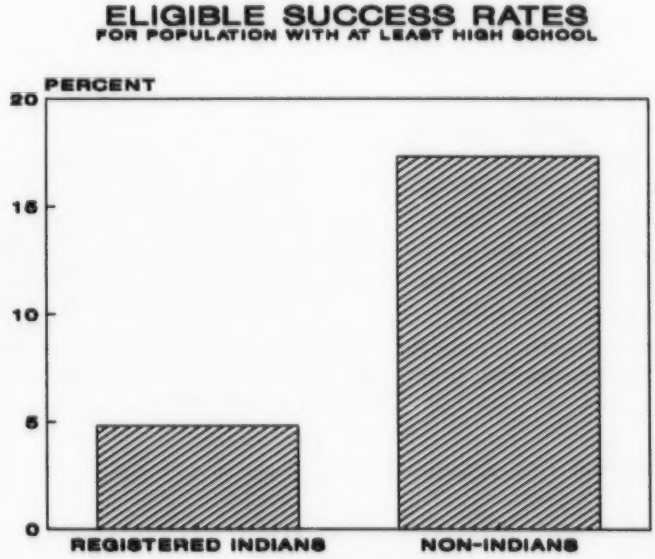

FIGURE 6

Source: 1986 Census of Canada

than seven times as likely to be successful at university than Indians. It would seem that the low Crude Success Rate among Indians is related to their low completion rates in high school.

Success in the Population that Attempted University

One final factor having a possible effect on Crude Success Rates is the differential attendance rates of Indians and non-Indians at university. As the Eligible Participation Rate indicates, 22.6 percent of eligible Indians attempt university compared with 33.2 percent of eligible non-Indians. As fewer eligible Indians participate, the Eligible Success Rate for Indians may be relatively low. To provide some control for differences in university attendance, the next analysis looks at success only among those who attempted university.

As illustrated in Figure 7, 21.3 percent of Indians who ever attempted university successfully earned a degree by 1986. For non-Indians, 52.0 percent of those who attempted university had been successful. In other words, for individuals having attended university, non-Indians are about 2.4 times as likely as Indians to earn a degree. This difference is lower than that indicated by the Eligible Success Rate where non-Indians were 3.6 times as likely to earn a degree. Therefore, the relatively low university success among Indians is partly attributable to the fact that proportionally fewer eligible Indian students pursue a university education.

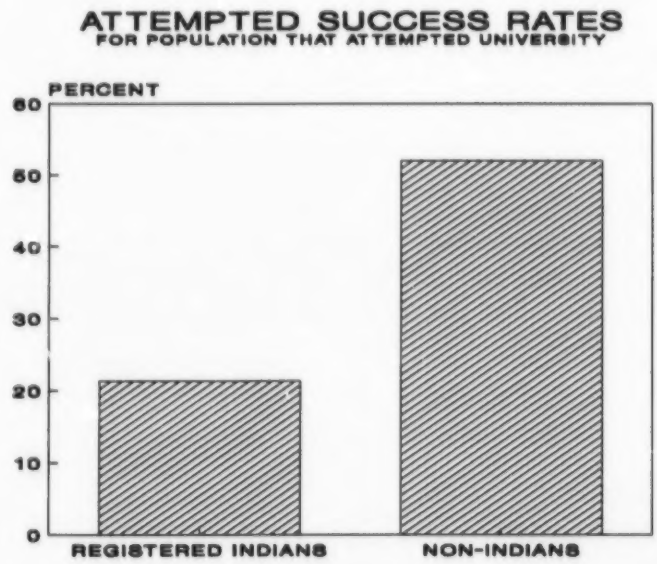

FIGURE 7

Source: 1986 Census of Canada

Adjusting For Attendance

As previously discussed, the success rates in this paper include students who are attending university, even though those students can be considered neither successful nor unsuccessful. As a result, the Attempted Success Rate is artificially low both for Indians and non-Indians. Further, the inclusion of attending students can lead to a

second undesirable effect on the statistics. If the proportionate number of Indians attending university is greater than the proportionate number of non-Indians, then the Attempted Success Rate would overestimate the difference between Indians and non-Indians. To explore this possibility, the 1986 Attempted Success Rate was adjusted to estimate attendance rates.

Method of Adjustment

In 1981, 35.8 percent of Indians with at least some university were still attending, compared to 30.0 percent of non-Indians. Multiplying these 1981 attendance rates by the respective number of Indians and non-Indians in 1986 with at least some university gives the expected attendance at university in 1986. Subtracting this number from the 1986 population with some university leaves an estimate of the number of persons with some university and are no longer attending in 1986. The Adjusted Success Rate is calculated on this estimate.

Applying the 1981 attendance rates[8] to the respective Indian and non-Indian populations in 1986 produces an Adjusted Success Rate of 24.7 percent for Indians and 56.5 percent for non-Indians (see Figure 8). Compared with the unadjusted figures, these are up 3.4 percentage points for Indians and 4.5 percentage points for non-Indians.

Based on the adjusted figures, non-Indian students are about 2.3 times more likely to complete a degree than Indians. This difference is virtually the same as that found with the unadjusted figures, indicating that little if any difference in the Attempted Success Rates between the Indian and non-Indian can be attributed to differential attendance rates at university. Further, 1981 statistics for individuals not attending school yield Attempted Success Rates of 54.6 for non-Indians and 27.6 for Indians, the non-Indian rate being twice that of Indians. Taken together, these various Attempted Success Rates indicate that non-Indians commencing university studies nearly have a 55 percent likelihood of earning a degree, and Indians who commence university have about a 25 percent chance.

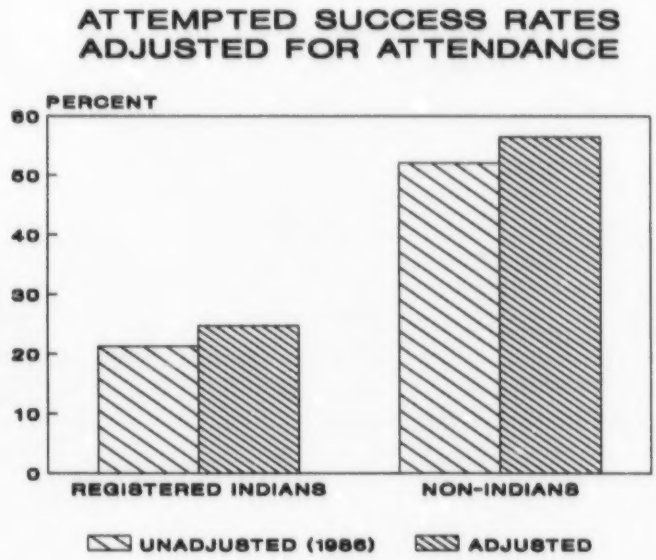

FIGURE 8

Source: 1986 Census of Canada

Discussion

The Crude Participation Rate and the Crude Success Rate among Canada's registered Indian population are very low. Among those Indian people aged 15 years or older in 1986, only 6.2 percent reported that they had attempted university at some time. Only 1.3 percent had earned a degree. In the non-Indian population, 18.5 percent have had at least some university and 9.6 percent had a degree. In relative terms, non-Indians are about 3.0 times more likely to participate at university and about 7.4 times as likely to successfully earn a degree.

The difference between the Indian and non-Indian populations is substantial. However, the Eligible Participation and Success Rates indicate that a large part of that difference is related to the comparatively low levels of high school completion among Indian people. Looking only at Indians with at least a high school diploma, the participation rate at university increases to 22.6 percent and the success rate increases to 4.8 percent. These figures are not dramatically high. However, they are much closer to the non-Indian figures; about 33.2 percent of eligible non-Indians attended university and 17.3 percent had a degree. In relative terms, non-Indians with a high school diploma were 1.5 times more likely to participate and about 3.6 times as likely to earn a degree as Indians with at least a high school education.

The success rate among Indians who attempted university is closer yet to the success rate among non-Indians: 21.3 percent versus 52.0 percent. In other words, non-Indians who attempt university are about 2.4 times more likely to succeed than Indians. This is a substantial difference in performance at university, but far less than indicated by the crude rates.

The Attempted Success Rate indicates the relative difference in university performance between Indians and non-Indians. However, it underestimates the actual performance of both populations. As previously discussed, this is because students who were attending school at the time of enumeration are included in the Attempted Success Rate. Adjusting to the 1981 rates of attendance increased the success rates for Indians and non-Indians to 24.7 percent and 56.5 percent respectively, indicating that Indians are only half as likely to leave university with a degree as non-Indians.

These findings suggest three conclusions:

1. Indians are one-third as likely to go to university as non-Indians.

2. The poor participation and success rates in the Indian population are associated with their relatively poor high school completion rates.

3. Indians who make it to university are still less than one-half as likely to earn a degree as non-Indians.

Based on these findings, it would seem that the extent to which the differences in participation and success between Indians and non-Indians can be reduced will depend on three factors: (1) improving high school completion rates; (2) improving university attendance rates by eligible students; and (3) improving success among students who commence university studies. Current trends in secondary school retention indicate that steady improvements continue to be made in high school completion rates.

The next section of this paper explores the extent to which economic benefits are associated with earning a degree, doing so in the context of how associated benefits might serve to motivate Indians to pursue a university education. Identifying the reasons for poor success rates among Indians in high school and at university lie outside the scope of this study but must be the subject of future research.

ECONOMIC WELL-BEING AND THE UNIVERSITY DEGREE

This section focuses on the association between university education and economic well-being for Indian people. This association merits study on two counts. First, it is useful to confirm that university education is associated with economic well-being because this assumption underlies federal Indian education policy. Second, evidence suggests that expectations of economic well-being are a significant motivating factor for Indians to participate and succeed at university (although that evidence is limited). The evidence that Indians are motivated by expectations of economic well-being is reviewed first. Then, the economic well-being of Indian degree holders is analyzed in two dimensions; (1) labour force[9] activity and (2) income. It should be recognized that this measure of economic well-being ignores other important and non-conventional dimensions that may be appropriate in Indian society, such as informal access to goods and services through family and friends.

In each dimension, Indian degree holders are compared with Indians who chose not to pursue university studies and also to non-Indian degree holders. The first comparison helps evaluate the potential gains associated with the investment of time and effort into earning a degree. The second comparison helps assess the potential gains for Indians relative to other Canadians. Further insights into these comparisons are achieved by examining career paths and controlling for labour market opportunity and work experience. As in the previous section dealing with university participation and success, the data are taken from the 1986 Census of Canada. The analyses in this section are listed below:

Economic Well-Being

Dimension	Indicator/Analysis
Labour Force Activity	Participation Rate Employment Rate Unemployment Rate Relative Gains The Influence of Work Experience The Influence of Labour Market Opportunity
Income	Median Income $20,000 Cut-Off Level $40,000 Cut-Off Level The Influence of Work Experience The Influence of Labour Market Opportunity Career Path

A review of literature suggests that in the general population, an expectation of economic benefit is a primary motivator to pursue a university degree. In a survey conducted by Sewall (1984), for example, more than one-half of university students reported that they had enroled to improve their employment opportunities. Other authors correctly point out that an expectation of economic benefit is not the only motivation to attend university. Personal growth and development are said to be important considerations (Degen, 1985: 14), as are prestige, tradition, and social practice (Walsh, 1968: 453). Nevertheless, an expectation of economic well-being is probably among the most important motivators. As Walsh argues, pursuing a university education represents a significant financial investment not only in cost, but also in income foregone. To compensate for that expense, presumably there must be a strong expectation of financial return.

If Canadians believe that economic well-being will follow a university education, that belief is well founded. Figure 9, based on 1986 Census data, illustrates that a higher median income is associated with a higher education for non-Indian Canadians. A recent study by Statistics Canada (Mori & Burke, 1989) found a similar association. In that study, indicators of economic well-being included labour force activity and income levels. Not surprisingly, the employment rate, the participation rate, and income were found to be highest for Canadians with a university degree, while unemployment was lowest.

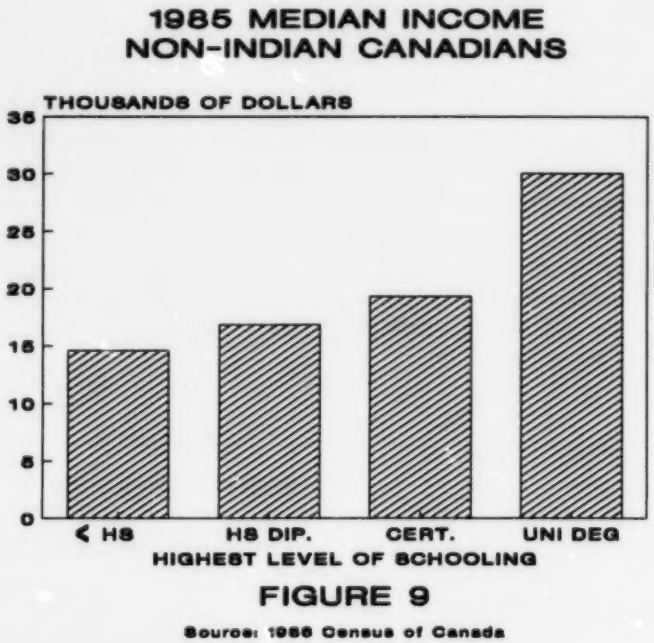

FIGURE 9

Source: 1986 Census of Canada

Among Indian people, the primary goal of education also seems to be perceived in terms of greater economic well-being. In a study by the Federation of Saskatchewan Indians (FOSI, 1973), for example, a random sample of Saskatchewan Indians were asked to rank the most important outcomes of education. More than 70 percent of the Indians chose job skills as the most important outcome. Moreover, 85 percent either agreed or strongly agreed with the statement "The goals of education - like getting an

important job, and making good money - are as important for Indians as for whites" (p. 314). Regarding preparedness for employment, "the respondents assert overwhelmingly that employability, and the potential for earning a regular income, ought to be important goals of the education of Indians" (p. 286).

In a separate study conducted at the University of Manitoba, Degen (1985) surveyed native people (Metis, status and non-status Indians) who were once students in the Access Program. Those natives either graduated with a degree or were enroled in a degree program. According to Degen, the respondents perceived themselves to be more likely to: find full-time employment; find employment in the place of their choice; receive a higher income; be employed at a managerial level; and to be more satisfied with their job.

Finally, Elliot (1970) compared Indian students to non-Indian students and found that high educational aspirations were accompanied by high occupational expectations for 81 percent of non-Indians and 70 percent of Indians.

In summary, Indian people seem to share with other Canadians an expectation that improved economic well-being will follow a higher education. In the next analysis, the association between economic well-being and a university education is explored in two dimensions: labour force activity and income.

Labour Force Activity

Labour Force Activity rates are commonly used as indicators of economic well-being. Those who are best-off economically are said to have the highest rates of participation in the labour force, the highest rates of employment, and the lowest rates of unemployment.

First, labour force activity rates are compared within the Indian and non-Indian populations across four levels of education: (1) less than high school; (2) high school diploma only; (3) a non-university certificate; and (4) a university degree. Next, the focus of the analysis shifts to a specific comparison between Indians and non-Indians on the relative gains associated with a university degree over a high school diploma.

Labour Force Activity

Labour Force - refers to those Canadians 15 years of age or older, excluding institutional residents, who; were employed in the week prior to enumeration, were without work but had definite arrangements to work within four weeks, or had actively looked for work in the past four weeks.

Participation rate - refers to the total labour force (in the reference week) expressed as a percentage of the total population 15 years of age and older, excluding institutional residents.

Employment rate - refers to the total number of employed persons expressed as a percentage of the total population 15 years of age and older, excluding institutional residents.

Unemployment rate - refers to the unemployed labour force expressed as a percentage of the total labour force (in the reference week), excluding institutional residents.

For both the Indian and non-Indian populations, labour force activity increases across the four levels of education examined. The participation rate among Indians with less than a high school diploma is 37.9 percent. This figure rises to about 86.9 percent for those Indians with a degree (see Figure 10). In comparison, participation among non-Indians rises from 50.6 percent to 87.1 percent across the same levels of education.

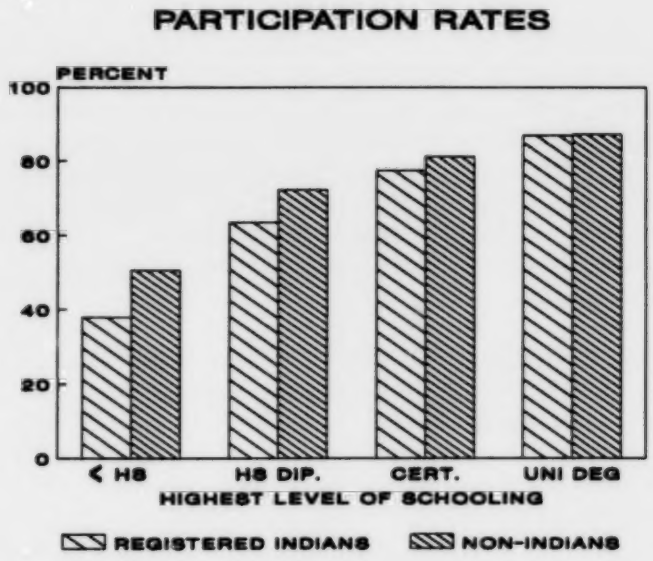

FIGURE 10

Source: 1986 Census of Canada

The employment rate also steadily increases with the level of education (Figure 11). From the lowest level of education to the highest, employment among Indians increases over three times, from 23.1 percent to 76.9 percent. For non-Indians, the increase in employment is just less than double; 43.9 percent to 82.3 percent.

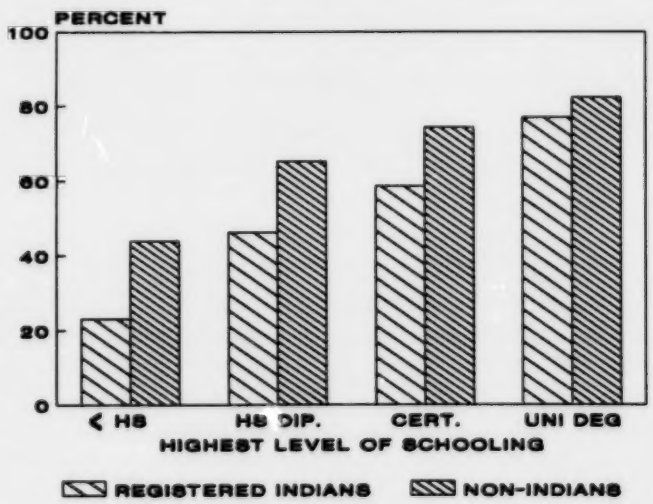

FIGURE 11

Source: 1986 Census of Canada

Unemployment rates for both populations steadily fall as the level of education increases (see Figure 12). Among Indians with less than high school, the unemployment rate is 38.9 percent. With a degree, that rate falls to 11.8 percent. For non-Indians with less than high school, the unemployment rate is about 13.3 percent, whereas with a degree, that rate is 5.4 percent.

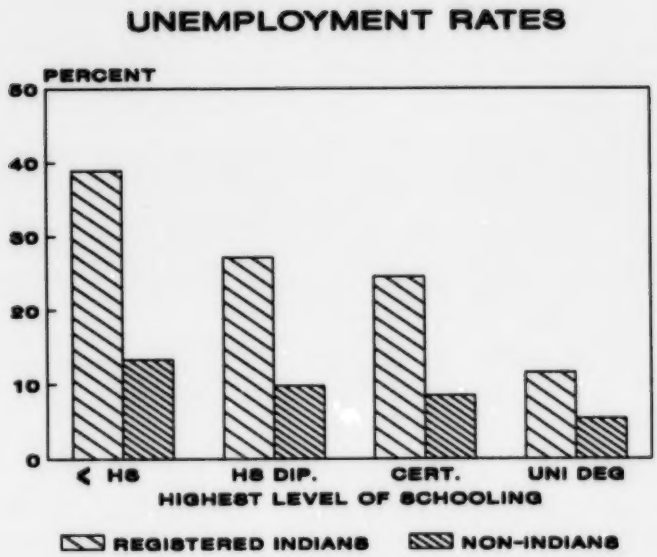

FIGURE 12

Source: 1986 Census of Canada

A. Relative Gains

Improved labour force circumstances are associated with increasing levels of education[10] for both the Indian and non-Indian populations. Moreover, the differences in labour force activity between the two populations decrease. To illustrate, consider the employment rate (Figure 11). Indians with less than a high school education are only half as likely to be employed as non-Indians at the same level of education. However, the employment rate for Indians with a degree is almost the same as that for non-Indians. A similar trend is evident with the participation rate and unemployment rate.

To provide a more precise analysis of the gap between Indians and non-Indians, two levels of education are focused on for comparison: the university degree and the high school diploma. In this way, the relative economic benefits associated with a university degree can be directly compared with the benefits of having a high school diploma and not pursuing a post-secondary education. The results are summarized in Table 1.

Compared to Indians with a high school diploma, Indians with a university degree have 1.4 times the labour force participation rate. The relative gain for non-Indians is less: 1.2. Thus, while university graduates show a higher participation rate than high school graduates in both populations, the relative increase for Indians is higher than for non-Indians (see Figure 10). Indians with a degree have an improved employment rate over high school graduates by 1.7 times. In comparison, the gain in the employment rate for non-Indian degree holders is only 1.3 times.

The unemployment rate for Indians with a degree is 0.4 times that of Indians with a high school diploma. Non-Indians with a degree have 0.6 the rate of unemployment of non-Indians who have a high school diploma only (see Figure 12). The lower relative gain in the unemployment rate among degree holding Indian people indicates a greater relative gain in economic well-being.

Relative Gain in Labour Force Activity From Acquiring a University Degree Over A High School Diploma

Labour Force Activity	Indians	Non-Indians
Participation Rate	1.4	1.2
Employment Rate	1.7	1.3
Unemployment Rate	0.4	0.6

Greater economic well-being is associated with a higher relative gain in labour force participation and employment, and a lower relative unemployment rate.

Table 1

The labour force activity rates indicate that Indians experience greater economic well-being by obtaining a university degree. In terms of percentage points, the differences in the labour force activity rates between Indian and non-Indian degree holders is small compared with those with lower levels of education. Nevertheless, the difference is important to study for at least two reasons. First, a single percentage point represents a substantial number of people. Second, while only six percentage points separate the unemployment rate of Indian and non-Indian degree holders, the proportional difference is more than two to one. In the next analyses, two factors are explored which may account for part of the difference in labour force activity between Indian and non-Indian degree holders: work experience and labour market opportunity.

B. The Influence of Work Experience

Perhaps differences in work experience between Indians and non-Indians can account for some of the observed differences in labour force activity. This being the case, controlling for differences in work experience may reduce the observed differences in labour force activity.

Youth: Controlling for work experience is difficult because the census does not capture this information. Furthermore, the work experience profile among Indian people with degrees is considerably different from that of non-Indians. First, it is only recently that appreciable numbers of Indian people have earned degrees. Second, Indians tend to be older when they graduate from university and enter the work force (Martin and Macdonell, 1982: 239). However, some control can be achieved by looking at university graduates between the ages of 15 to 24 years. Degree holders in this age group would likely have very limited experience, whether Indian or non-Indian.

The labour force participation rate among Indian degree holders aged 15 to 24 years actually exceeds that of non-Indians: 90.6 versus 88.0, respectively. When work experience is not controlled, the Indian participation rate is slightly lower than non-Indians at 86.9 compared with 87.1, respectively.

Controlling for work experience also reduces the advantage of non-Indians over Indians with respect to employment and unemployment rates. For those aged 15 to 24 with a university degree, employment rates in the two populations are virtually identical at 75.0 percent for Indians and 76.1 percent for non-Indians. In the absence of a control for work experience, the employment rates are 76.9 for Indians and 82.3 for non-Indians; a difference of about 5 percentage points. The difference in unemployment rates between Indians and non-Indians is reduced from 2.1 to 1.3 times when work experience is controlled. The unemployment rate for Indians aged 15 to 24 with a degree is 17.2, compared with 13.5 for non-Indians.

Age Standardization: There are good reasons to believe that age is a poor proxy for work experience. Certainly, variation in work experience increases with age. Nevertheless, age-standardized[11] labour force rates are presented for interest's sake, comparing Indians with non-Indians. To increase the comparability between Indians and non-Indians, only the off-reserve populations are considered because reserves impose unique barriers to gaining work experience (e.g., Armstrong, 1989: 6ff).

The non-standardized participation, employment and unemployment rates for Indians off-reserve who hold degrees are 85.4, 76.0, and 11.4, respectively. When the age composition of off-reserve Indian degree holders is standardized to that of non-Indians with a degree, the labour force participation rate among Indians lowers to 82.0, compared with 87.1 for non-Indians. The employment rate lowers to 71.8 for Indians and 82.3 for non-Indians. The unemployment rate improves to 9.4 versus 5.4 for Indians and non-Indians respectively (see Figure 13).

AGE-STANDARDIZED LABOUR FORCE RATES

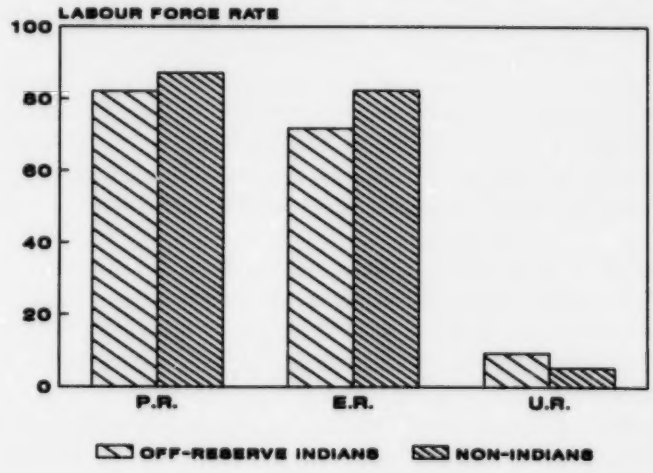

FIGURE 13

Source: 1986 Census of Canada

C. The Influence of Labour Market Opportunity

Labour market opportunity is a second possible reason for the difference in labour force activity rates between Indians and non-Indians. Labour market opportunity refers to the availability of work. This may be a factor because the opportunity to participate in the labour force tends to be less in remote regions and on reserves where many Indians reside (McLachlan, 1986: 260).

One way to control for labour market opportunity is to compare on-reserve Indians to non-Indians living in "comparison communities"[12]. Comparison communities are roughly similar in size and are located in sub-regions associated with reserves. Presumably, persons living in comparison communities are subject to labour market opportunities more similar to those available to Indians on-reserve than are other Canadians. This being the case, differential effects of labour market opportunity on labour force activity are controlled to some degree, although reserves place constraints beyond those of location alone (Armstrong, 1989: 6-9).

The participation rate for on-reserve Indians with a university degree is 88.3. For university degree holders living in comparison communities, the participation rate is about the same at 86.2. These figures represent a difference of 2.1 percentage points. When labour market opportunity is not controlled, Indian and non-Indian degree holders have participation rates of 86.9 and 87.1, respectively.

The employment rates among on-reserve Indians with degrees and comparable non-Indians with degrees are within four percentage points: 78.3 and 82.1, respectively. These results are similar to those obtained for all Indians (76.9) and non-Indians (82.3) with a degree.

The unemployment rate for on-reserve Indians with a university degree is 11.9. For non-Indians in comparison communities, the unemployment rate is 4.7 among degree holders. These results show an increased gap compared to Indian and non-Indian degree holders: 11.8 and 5.4, respectively.

Provincial Standardization: All regions in Canada are not equal with respect to labour market opportunity. Therefore, differences in labour force activity rates between the Indian and non-Indians with degrees may be related in part to the different distributions of the two populations across Canada. To explore this possibility, and as a second means of controlling for labour market opportunity, the provincial distribution of Indian degree holders is standardized to the population of non-Indian degree holders. Only the off-reserve populations are considered thereby taking into account the unique barriers to labour market opportunity on-reserve.

When the off-reserve Indian population is standardized to the distribution of non-Indians across the provinces, the Indian participation rate is 89.0. This is 2.0 percentage points higher than the non-Indian rate of 87.1. The employment rate among off-reserve Indians with degrees is 78.2, whereas among non-Indians, it is 82.3. The unemployment rate for Indians and non-Indians is 10.1 and 5.4, respectively (see Figure 14).

The non-standardized participation rate for off-reserve Indians with degrees is 85.4. This is almost four percentage points lower than the standardized rate. The non-standardized employment rate is 2.2 percentage points lower at 76.0, and the non-standardized unemployment rate is higher at 11.4.

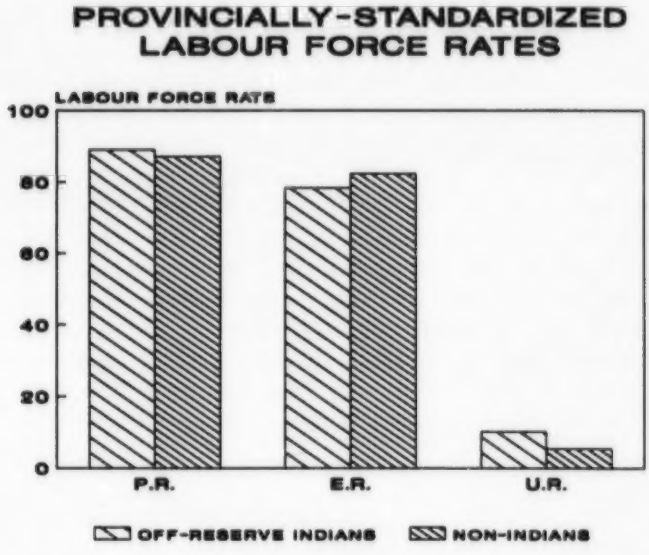

FIGURE 14

Source: 1986 Census of Canada

Discussion

In summary, labour force activity rates substantiate any expectations among Indians that greater economic well-being will follow a university education. For both Indians and non-Indians, increased levels of education tend to be followed by increased rates of participation in the labour force, increased employment, and less unemployment. Compared to Indians with a high school diploma, Indians with a university degree are about thirty percent more likely to participate in the labour force, forty percent more likely to be employed, less than one-half as likely to be unemployed.

Not only does economic well-being among Indians increase with education, but differences in labour force activity between Indians and non-Indians decrease. With a university degree, labour force participation among Indians is virtually identical to non-Indians, the employment rate is within six percentage points, and the unemployment rate is within seven percentage points. Compared with lower levels of education, this gap is much smaller. This means that the relative gain associated with a university degree is greater for Indians than non-Indians.

Some of the statistical disparities in labour force activity between Indians and non-Indians may be due to work experience. Statistical disparities in participation seem more apparent than real, reflecting differences in labour market opportunity. Disparities in unemployment cannot be accounted for as easily.

Income

Income refers to the total reported income received from all sources during the calender year 1985 by persons 15 years of age and over. As economic well-being increases, income would also be expected to increase. Accordingly, income provides a means of further verifying the association between a university education and economic well-being which is indicated by labour force activity rates.

In the first analysis, the relationship between education and median income[13] for Indians and non-Indians is compared across the same four levels of education as in the analysis of labour force activity: less than high school, high school diploma, non-university certificate, and university degree. The second analysis of income focuses on a specific comparison between Indians and non-Indians on the relative income gains associated with a university degree over a high school diploma. Finally, the influence of labour market opportunity and career path are explored as possible factors which account for the observed differences between Indians and non-Indians.

Median income is the dollar value which half the population earns above and half the population earns below. In the present paper, the median income is calculated only for those with income. In this way, differences in labour force activity between Indians and non-Indians are somewhat controlled.

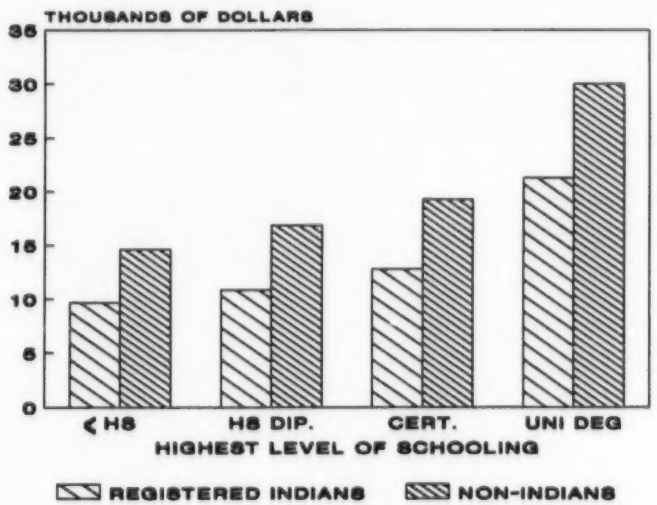

FIGURE 15

Source: 1986 Census of Canada

The median income for Indians with a degree is $21,275, about $9,000 higher than for Indians with a non-university post-secondary certificate, and more than double that of Indians with less than a high school diploma. In comparison, the median income for non-Indians with a degree is $30,016. This is about 30 percent higher than the median income for Indian degree holders (see Figure 15).

A. Relative Gains

To examine the relative gains that accompany a higher education, degree holders are compared with high school graduates on the proportionate number that receive above $20,000 and above $40,000 in annual income. The $20,000 income cut-off is approximately equal to the average individual income in the Canadian population in the 1986 Census. The $40,000 cut-off represents the high income group (categories in the INAC Customized Database did not include income groups above $40,000). To cross-verify the findings, relative gains are further assessed by examining the ratio of median incomes for Indians and non-Indian with less than high school, a high school diploma only, a non-university certificate, and a university degree.

INCOME CUT-OFF

Registered Indians 15 Years or Older
Income Cutoff (1985 dollars)

	A University Degree	B High School Diploma	A/B
$20,000 percent above	50.6	15.5	3.3
$40,000 percent above	12.6	1.8	7.0

Non-Indians 15 Years or Older
Income Cutoff (1985 dollars)

	A University Degree	B High School Diploma	A/B
$20,000 percent above	62.6	29.2	2.1
$40,000 percent above	29.5	5.0	5.9

TABLE 2

About 50.6 percent of Indians with a university degree earn above $20,000, whereas 15.5 percent of Indians with a high school diploma earn above $20,000. For non-Indians, 62.6 percent with degrees earn above $20,000 compared with 29.2 percent of non-Indians with a high school diploma. Based on this analysis, the relative gains associated with a university education are greater for Indians than non-Indians. In numbers, Indians are about 3.3 times more likely to earn above $20,000 if they have a degree rather than a high school diploma. Non-Indians are only 2.1 times more likely.

A small proportion of Indians have an income of more than $40,000- about 12.6 percent with a degree and 1.8 percent with a high school diploma. Of the non-Indian population with a degree, 29.5 percent have an income over $40,000 compared with 5.0 percent of non-Indians with a high school diploma. Again, Indians enjoy the greatest relative gain. Indians degree holders are 7.0 times more likely than high school graduates to earn above $40,000. Non-Indians are about 5.9 times as likely. These results are summarized in Table 2.

While the $20,000 and $40,000 dollar income cut-off levels indicate that Indians enjoy a greater relative gain in income, that analysis alone may not provide a complete picture of relative gains associated with increasing levels of education. The most important reason is that with only two cut-off levels, the resolution of the analysis is poor. For example, at the $15,000 or $30,000 cut-off levels, the opposite trends might be observed.

To provide a more detailed analysis of relative gain, the ratios of median incomes for Indians and non-Indians are compared across the four levels of education listed in Figure 15. These ratios indicate how much the median income differs between non-Indians and Indians. For example, if the ratio is one, there is no difference. If the ratio is one-half, the median income of Indians is one-half that of non-Indians. The ratios also indicate the relative gains associated with increasing levels of education. For example, if Indians enjoy a greater gain, then from Less than High School to a University Degree, the ratios of median income would approach one.

RATIO OF MEDIAN INCOMES

LEVEL OF EDUCATION	MEDIAN INCOME INDIANS(A)	NON-INDIANS(B)	(A/B)
LESS THAN HIGH SCHOOL	$ 9,694	$14,587	0.66
HIGH SCHOOL ONLY	$10,836	$16,834	0.64
NON-UNIVERSITY CERT.	$12,764	$19,277	0.66
UNIVERSITY DEGREE	$21,275	$30,016	0.71

TABLE 3

The median income for Indians with less than high school is $9,694 and for non-Indians it is $14,587 (see Table 3), giving a ratio of median incomes of 0.66. In other words, the median income of Indians with less than a high school diploma is two-thirds that of non-Indians. For Indians and non-Indians with a high school diploma only, the ratio of median incomes is about the same; 0.64. With a non-university certificate, again the ratio is 0.66. With a university degree, it is 0.71.

These results indicate that the differences in income between Indians and non-Indians change relatively little as the level of education increases. Another way of interpreting this result is that the relative gain in income is about the same for Indians as compared with non-Indians. Across levels of education, Indians have a median income of about two-thirds that of non-Indians. In contrast, differences in labour force activity between Indians and non-Indians decrease as the level of education increases (see Figures 10, 11, & 12).

B. The Influence of Work Experience

Perhaps differences in work experience can account for the substantial difference in median income between Indian and non-Indian degree holders. As previously discussed in relation to labour force activity, the work experience profile among Indian people with degrees is considerably different from that of non-Indians. In the next analysis, the influence of work experience on the observed differences in median income is explored by (1) looking at young degree holders between the ages of 15 to 24 years and by (2) standardizing the age composition of Indian degree holders to non-Indians.

Youth: The median income of Indian degree holders aged 15 to 24 years was higher than that of non-Indians by $400 dollars; $8,158 versus $7,713, respectively.

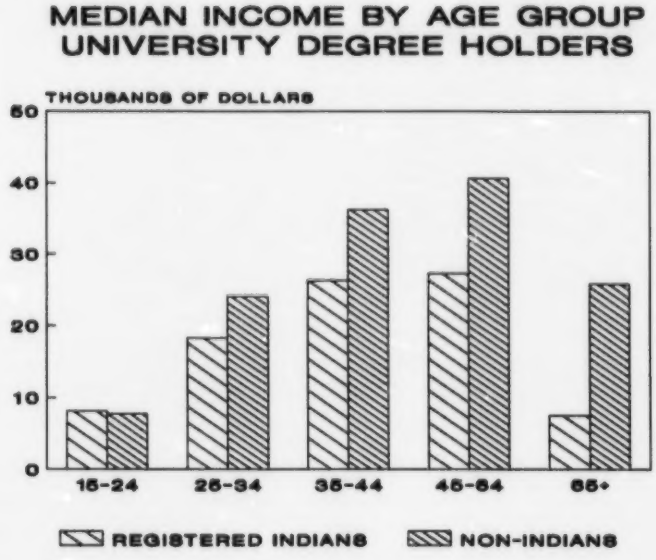

FIGURE 16

Source: 1986 Census of Canada

This finding suggests that part of the difference in median income between Indian and non-Indian degree holders can be attributed to differences in work experience. Further, the high median income among Indians would seem a welcome sign that the disparity between Indians and non-Indians may yet be eliminated. However, for age categories greater than 15-24 where work experience is greater, Indian degree holders have substantially lower median incomes than non-Indians (see Figure 16).

Age Standardization: The influence of work experience on median income is further explored by standardizing the age composition of Indian degree holders to the population of non-Indian degree holders. Although age is a rough proxy for work experience at best, matching the age profiles of the Indian and non-Indian populations perhaps provides some control for work experience.

Indeed, when off-reserve Indians who hold a degree are age-standardized to off-reserve non-Indians with a degree, the median income among Indians is $22,723, compared with $20,392 for off-reserve Indians when age is not standardized. For non-Indians off-reserve, the median income is $28,996. This finding indicates that a part of the difference in median income between Indians and non-Indians is associated with the different age-compositions of the two populations. If age is a reasonable proxy for work experience, this findings can be interpreted to mean that the differences in median income are related to differences in work experience between Indians and non-Indians.

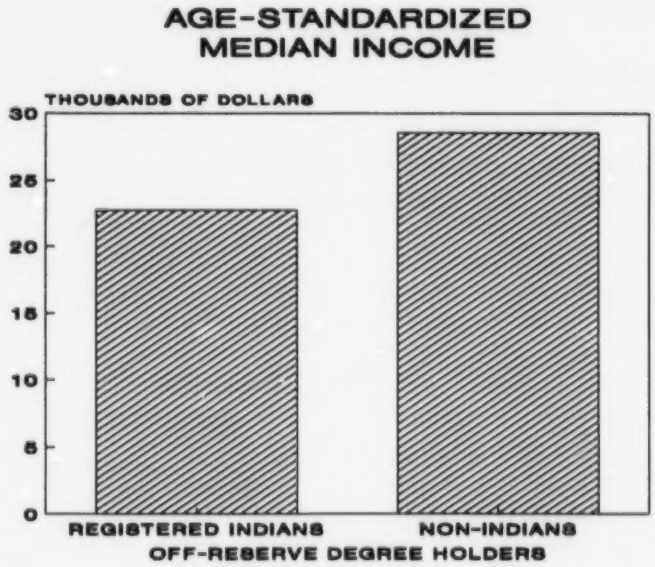

FIGURE 17

Source: 1986 Census of Canada

C. The Influence of Labour Market Opportunity

In the next study, labour market opportunity is assessed as a second possible reason for the difference in median income between Indians and non-Indians. As previously discussed, labour market opportunity may be a factor because the opportunity to participate in the labour force tends to be less for Indians, given that many reside in remote regions or on reserves (McLachlan, 1986: 260). As a general rule, wages are lower in regions where the economy is weaker. To control for labour market opportunity, on-reserve Indians are assessed relative to non-Indians living in "comparison communities" and the provincial distribution is standardized, as in the previous analysis of labour force activity.

Reserves and Comparison Communities: With a university degree, non-Indians in comparison communities have a median income which is 1.2 times that of Indians with a degree and living on reserve ($25,870 and $21,276, respectively). What is important about this result is that the difference in median income between Indians and non-Indians with degrees is only 1.2 times or about 17 percent. Compared with Figure 15 in which labour market opportunity is not controlled, the difference in median income

between Indians and non-Indians is 1.4 times or about a 30 percent. This finding suggests that differences in labour market opportunity between Indians and non-Indians may partly account for differences in median income.

Provincial Standardization: As previously discussed, all regions in Canada are not equal in opportunity to earn a high income. This means that differences in median income between the Indian and non-Indian degree holders may be related to differences in the population distribution across the provinces.

Standardizing to the provincial distribution of off-reserve non-Indian degree holders[14], the median income of off-reserve Indian degree holders is $24,386. For non-Indians, it is $28,996 (see Figure 18). While the median income is still less for Indians, the gap is reduced. In the absence of standardization, the median income is $20,392 for off-reserve Indian degree holders.

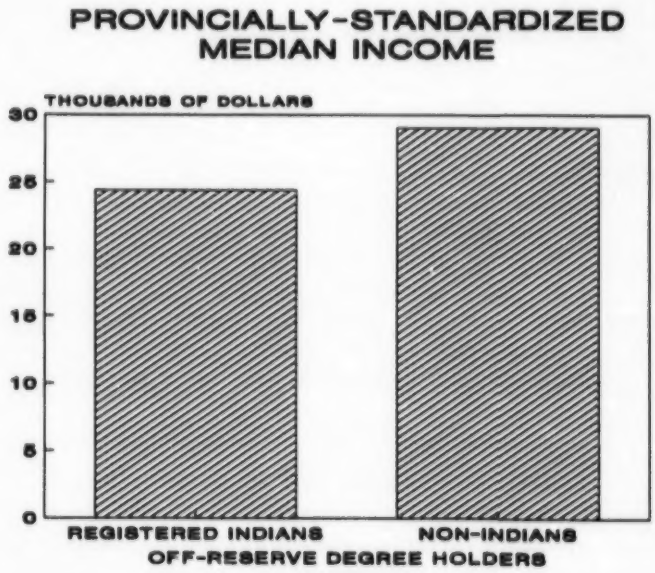

FIGURE 18

Source: 1986 Census of Canada

Career Paths

In this final section, broad major fields of study among Indians with a post-secondary degree, certificate, or diploma are compared to non-Indians to indicate whether similar career paths are pursued by the two populations. As Akyeampong (1990: 52) points out, economic well-being is dependent on the career path. Therefore, the findings may further account for observed differences between Indians and non-Indians. Moreover, the findings should indicate whether Indian students are as diverse in their studies as non-Indians, or whether they are focusing on a few academic areas. Ideally in this paper, major fields of study would be compared among university degree holders. However, the INAC Database does not contain this information.

MAJOR FIELD OF STUDY

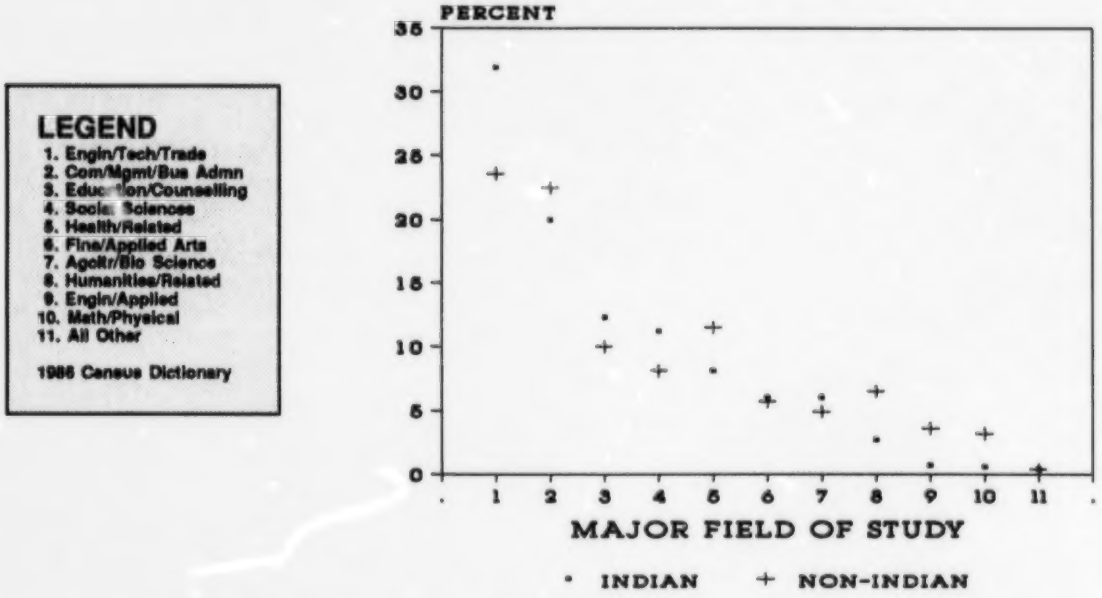

FIGURE 19

Source: 1986 Census of Canada

Figure 19 illustrates the proportion of the Indians and non-Indians with a post-secondary degree, certificate, or diploma in each of 10 major fields of study. From that figure, it is apparent that the distribution of students across the fields of study is very similar for Indians and non-Indians. With the exception of Engineering/Technical/Trade (point 1 on the X-axis), all are within four percentage points. For Engineering/Technical/Trade, 31.9 percent of Indian degree holders have studied in this field compared with 23.6 percent, a difference of 8.3 percentage points. In relative terms, the largest difference is in Applied Engineering (point 9 on the X-axis). More than five times as many non-Indians as Indians have studied in this field. However, the proportion of Indians and non-Indians that study in this field is among the smallest.

If the major field of study is an indication of career path, then the above data suggests that the Indian population is as diverse in their studies as the non-Indian population. Interestingly, Daniels (1977: 5) stated that "a concentration of Indian students in certain faculties and programs of universities is obvious", particularly education and the social sciences. Clearly, the fields of study in Figure 19 could be broken down further into hundreds of sub-disciplines. Indeed, with a higher degree of resolution, and looking at the university population, a number of differences might be found, as Daniels suggests. Nevertheless, it seems from the present data that most broad areas of study receive a similar proportion of Indian students relative to non-Indians.

SUMMARY AND DISCUSSION

The general statistical findings in this paper confirm commonly held beliefs about Indians in the context of education and economic well-being. Rates of participation and success among Indians at university are substantially lower than those of non-Indians. Indians with university degrees enjoy higher levels of economic well-being than other Indians, but fall considerably short of non-Indian degree holders in this regard. This paper quantifies many of these rates and disparities for the first time, provides insights into some of the underlying dynamics, and identifies several policy considerations. This section summarizes the key findings of the paper, discusses implications of the findings and poses questions with important policy considerations. A comprehensive summary of statistics is presented in Annex II.

Findings: Crude rates of participation and success are very low in Canada's registered Indian population. In 1986, only 6.2 percent had attempted university and only 1.3 percent earned a degree. Non-Indians are about three times as likely to have attended university and more than seven times as likely to successfully earn a degree.

The large differences between the Indian and non-Indian populations in participation and success at university seem to be largely due to the low rates of high school completion among Indian people. When differences in high school completion are controlled, the participation and success rates among Indians both increase about threefold to 23 percent and 5 percent, respectively. These figures are much closer to the non-Indian figures.

Looking at success among Indians who have attended university (adjusting for people attending at the time of enumeration), about 25 percent earn degrees compared with about 55 percent of non-Indians. In other words, non-Indians who attend university are twice as likely to earn a degree as Indians who attend. This is a substantial difference, but far less than that indicated by the crude rates.

In terms of economic well-being, it is evident that Indian degree holders enjoy better income and labour force-related circumstances than other Indians. Compared to Indians with a high school diploma only, Indians with a degree are almost 1.4 times as likely to participate in the labour force, 1.7 times as likely to be employed, less than half as likely to be unemployed, three times as likely to earn above $20,000, and seven times as likely to earn above $40,000. They also enjoy twice the median income of Indians with a high school diploma. Further, the differences in labour force activity between Indians and non-Indians decrease as the level of education increases. The gap between Indians and non-Indians who earn more than $20,000 and $40,000 is lowest among degree holders. The relative gains associated with earning a degree are greater for Indians than for non-Indians.

Regardless of the benefits associated with a degree, there remain substantial differences between Indian and non-Indian degree holders with respect to labour force activity rates and incomes. For example, relative Indian income seems stable across

levels of education with Indian median income being about two-thirds that of non-Indians in each instance. While some of the disparity can be attributed to variations in work experience and labour market opportunity, much remains unexplained and a concern to all who would see Indian people as equitable partners in Canadian society.

Implications: The findings of the paper point to three general avenues for improving participation and success among Indians at university: (1) improving high school completion rates; (2) improving university attendance rates by eligible students; and (3) improving success among students who commence university studies.

Perception of benefits is a primary motivating factor in pursuing and completing university studies. The literature indicates that Indian university students expect improved economic well-being as an outcome of earning a university degree. The study clearly demonstrates that greater economic well-being is associated with a university degree. In the context of improving participation and success, it is important for Indian people to know the extent to which they can realistically expect greater employment opportunities and higher incomes.

The considerable differences in median income between Indian and non-Indian degree holders may have implications for the structuring of financial assistance to Indian students. On one hand, investment by the student increases the student's stake in the successful completion of a program. On the other hand, increasing the student's contribution to paying for education increases the financial risk to the student. Income levels of university graduates have a bearing on perceived and real ability to repay loans. Policy makers considering alternatives to grant financing will need to examine income differences between Indians and non-Indians in mediating the countervailing forces of future income and investment on participation and success.

Disparities between Indians and non-Indians such as those presented in this paper are typically cited in criticisms of Canada's treatment of native people (e.g., CHRC, 1989: 14). However, university participation and success among Indians is increasing. Moreover, the present findings indicate that as the number of Indian degree holders rises, the differences in economic well-being between Indians and non-Indians will decrease. In this light, the future economic well-being of Indian people seems much more promising. Not only are Indians closing the economic gap through university education, Indian graduates as a group seem to be acquiring a breadth of knowledge similar to non-Indians, as indicated by the distribution of students and graduates across broad fields of study.

Some observers see a promising economic future for aboriginal people in Canada. Marshall (1990: 6) asserts that aboriginal people have a tremendous opportunity to acquire a greater representation in an aging work force. "If their (Indians) educational and job skills are matched to the needs of the next century, this country will have an important talent pool from which it can draw to replace retiring workers." Clearly, university education has been and will continue to be an important vehicle for improving the economic well-being of Indian people.

Questions: The findings presented in this paper point toward the promise of continued progress and improved prospects for Indian people in the context of university education. However, substantial gaps remain to be bridged between Indian and non-Indians in this regard. Addressing these differences will require additional understanding in four key areas touched upon in this study.

First, the extent to which Indian people choose to pursue university education in the future depends, in part, on motivational considerations. While the literature suggests that economic benefits are a primary motivator to attend university, it should be noted that this literature is both limited and mostly dated. Moreover, literature on other motivating factors is equally modest. A greater understanding is needed about motivating factors if policy and programs are to be successful in their intent to increase participation and success at university.

Second, there are outstanding questions concerning the association between economic well-being and university education at the regional level. Some regional disparities have already been documented. According to Statistics Canada, for example, "in terms of the level of schooling, the disparity between aboriginal and non-aboriginal persons is greater in the North than in Canada as a whole". Moreover, "there are considerable differences in the educational attainment of different aboriginal groups in the North. In 1986, 64 percent of adult Inuit had less than grade 9, compared with 55% of Indians, and 30% of Metis." (Statistics Canada, 1990). Along similar lines, more work is needed on the influence of labour market opportunity. Clearly, a great deal of research remains to be done at finer geographical levels. Authors such as McLachlan (1986), Stabler (1989), and Bone and Green (1986) have already begun this work.

Third, questions remain on the disparities between Indians and non-Indians in participation and success at university. To what extent are differences apparent rather than real? For example, what has been the effect of not including university diplomas and certificates in measures of success in this paper? Are real disparities in participation and success related to the lack of appropriate training options for Indian students? How much of the difference can be attributed to the level of scholastic preparedness for university, cultural shock, level of commitment, and other factors?

Finally, questions remain on the differences in economic well-being between Indian and non-Indian degree holders. What factors contribute to the employment and income disparity? To what extent is work experience a factor? To what extent can the differences in economic well-being be attributed to level of achievement at university, racial discrimination, lifestyle choices, and other factors typically cited, but seldom explored? Answers to these and related questions would enhance policy-making in the areas of education and economic well-being.

NOTES

1. The "Registered Indian" variable was developed from Questions 7 & 17 on the 1986 Census of Canada.
2. In this paper, the term "university degree" does not include university certificates or diplomas.
3. "Level of Education" refers to the highest level of schooling completed at the time of enumeration. For more information, see the "Dictionary, 1986 Canada Census" by Statistics Canada.
4. The "Eligible" population refers to respondents who were 15 years of age or older and who had acquired at least a high school diploma. However, one could have entered university without a high school diploma as a mature students. This highlights the fact that the population with at least a high school diploma is a proxy of university eligibility and does not carry any guarantee that all individuals thus classified were eligible.
5. A "dropout" was defined by Statistics Canada in the 1986 Census publication "Educational Attainment of Canadians" (catalogue 98-134) as an individual with a highest level of schooling less than a high school diploma.
6. To provide an indication of the number of students who complete high school in consecutive years (illustrated in Figure 4), the number of students in Grade 12 and 13 were divided by the number in Grade 1 either 12 or 13 years earlier.
7. Less than a Grade nine education defined those who were "functionally illiterate" in the 1986 Census of Canada.
8. The 1981 Census estimate of university attendance includes only those persons who have successfully completed at least one credit course. Therefore, both the Indian and non-Indian rates are underestimated.
9. "Labour Force" refers to those Canadians 15 years of age or older, excluding inmates, who in the week prior to enumeration were either employed or looking for work, expecting work, or laid off.
10. While success in the labour force tends to increase with the level of education, the nature of the relationship between these variables remains unclear. University education might increase the probability of gaining employment. Alternatively, both university education and employment might be the result of any number of other variables, including motivation and cultural values.
11. This produces the number of Indians expected if their age profile were the same as non-Indians. For further discussion on standardization, see Oberle, P.R., Standardization, QASR, INAC, (working paper, in press).
12. For further information on "comparison communities" see Methodology and Results of Selecting Non-Indian Communities for the Community Comparison Project, Evaluation Directorate, INAC, February, 1990
13. The INAC Customized Database gives income figures in terms of the number of respondents per income category. Median income is interpolated by assuming that the population distribution within each category is linear. The median income is the preferred over the mean as a measure of central tendency for income because the mean is sensitive to extreme values.
14. The population of Indian degree holders across the provinces is small. Therefore, the reliability of the standardized results is suspect. To increase the numbers in the Atlantic provinces, Nova Scotia was combined with Newfoundland, and New Brunswick was combined with P.E.I.

ANNEX I
PSSSP AND UNIVERSITY SUCCESS

DIAND's Post-Secondary Education Assistance Program (PSSSP) is designed to encourage Canada's registered Indians to undertake and complete a post-secondary education. This is achieved primarily through financial assistance to cover the student's tuition, travel, and living expenses.

How successful has PSSSP been in increasing attendance and success at universities and other post-secondary institutions? In the analysis below, an indication of PSSSP's success is obtained by comparing the participation and success rates of off-reserve registered Indians to "other aboriginal people" who are not registered under the Indian Act.

"Other aboriginal people" forms the comparison group because they are presumed to be culturally more similar to Indians than the non-Indian population. Other aboriginal people are also presumed to be more similar economically, though still better able to afford a post-secondary education. However, unlike Indians, other aboriginals are not registered under the Indian Act. Therefore they are not eligible for the PSSSP program. The off-reserve populations are assumed to be relatively similar in their degrees of integration with non-aboriginal society, thus controlling for greater cultural barriers to post-secondary education by on-reserve Indians. The operating hypothesis of this analysis is that differences favouring off-reserve Indians in post-secondary participation and success can be attributed (to some degree) to the availability of PSSSP. If PSSSP is effective, participation and success rates should be higher among registered Indians than "other aboriginals". To see if this is the case, 1986 Census data on registered Indians and "other aboriginals" (15 years of age and older) were compared under the following rates:

	POPULATION*	RATE	INSTITUTION
1.	Eligible	Participation Rate Success Rate	All Post-Secondary University
2.	Attempted	Success Rate	All Post-Secondary University
3.	1981 Adjusted	Success Rate	University

* see previous section titled "Participation and Success at University" for definitions of these populations.

The results are presented in Table A-1. The first four rates in the table are Eligible Rates which consider only off-reserve people with at least a high school diploma. The use of Eligible Rates controls for differential high school completion rates. Participation by eligible registered Indians at non-university institutions exceeds that of other aboriginals, but only by a small (though statistically significant) margin (1.1 times or 6.5 percentage points). However, the number of eligible registered Indians that have attended university is almost double that of other aboriginals: 26.5 percent and 16.2 percent respectively.

PARTICIPATION AND SUCCESS RATES*

	OFF-RESERVE REGISTERED INDIANS	OFF-RESERVE OTHER ABORIGINALS
Eligible Rates		
1. All PSE Participation Rate	83.3	76.8
2. University Participation Rate	26.5	16.2
3. All PSE Success Rate	38.9	43.3
4. University Success Rate	5.9	4.4
Attempted Rates		
5. All PSE Success Rate	46.7	56.5
6. University Success Rate	22.3	27.0
7. **1981 Adjusted** University Success Rate	26.3	29.7

* Refer to the previous section titled "Participation and Success at University" for definitions of these rates. Also, it is not clear to what degree PSE includes shorter term training than that funded through PSSSP and/or to what degree PSE does not require High School equivalent. Note that the 1981 Rates include other aboriginals both on and off reserve.

Table A-1

While eligible Indians had higher participation rates at post-secondary institutions than other aboriginals, their success rates were lower (38.9 versus 43.3, respectively). In contrast, eligible Indians were more successful at earning a degree than other aboriginals (5.9 versus 4.4, respectively). However, the Eligible Success Rate at university is probably higher for Indians because proportionally more eligible Indians participate at university, not because those Indians who attend university are more likely to succeed. This fact is demonstrated by the Attempted Success Rates.

The use of Attempted Success Rates consider only those who attended university, thereby controlling for differential university participation rates between Indians and other aboriginals. Based on these rates, Indians who attend university are less successful at earning a degree than other aboriginals: 22.3 percent compared with 27.0 percent, respectively. Similarly, Indians who attend a post-secondary institution are less likely to succeed than other aboriginals; 46.7 versus 56.5.

Finally, to control for persons who were attending school at the time of enumeration (as previously explained in the section titled "Success in the Population that Attempted University"), the Attempted Success Rates were adjusted to the 1981 attendance rates to produce an Adjusted Success Rate at university. As shown in Table A-1, when attendance is taken into account, other aboriginals are still more successful at university than registered Indians, but by a reduced margin (26.3 versus 29.7, respectively).

The results suggest that PSSSP increases participation among Registered Indians at post-secondary institutions, particularly at universities. However, success rates among registered Indians both at university and other post-secondary institutions are lower than for other aboriginals. Assuming that other aboriginals are an appropriate comparison group, it would seem that PSSSP is not addressing the question of successful completion of studies. However, this may not apply to PSSSP after 1986, the year on which the present findings are based. In 1987, PSSSP incorporated a policy whereby Indian students are only allowed a limited number of semesters to complete a university program. This policy may encourage the successful completion of studies before the allotted support has expired because there are a limited number of opportunities to repeat failed or incompleted courses.

The reasons for the low success rates among Indians are far from clear. Perhaps Indian students are poorly prepared to attend university. This would account for the high drop-out rate. Alternatively, as PSSSP pays the majority of expenses, Indian students may lack the commitment that normally follows a capital investment by the student or the family. A third possibility is that the entrance requirements for Indian students are not as stringent, thereby allowing unqualified persons to enter the system. Finally, various social and cultural factors ranging from lack of community support and culture shock to cultural incompatibility and racism may also come into play (e.g., see AOFN, 1988). Factors of success and failure at university need to be studied if government intends to address low success rates through its programs.

ANNEX II

	INDIANS(A)	NON-INDIANS(B)	RATIO(B/A)
UNIVERSITY PARTICIPATION & SUCCESS			
Crude University Part. Rate	6.2	18.5	3.0
Eligible University Part. Rate	22.6	33.2	1.5
Crude University Success Rate	1.3	9.6	7.4
Eligible University Success Rate	4.8	17.3	3.6
Attempted University Success Rate	21.3	52.0	2.4
1981 Adjusted Success Rate	24.7	56.5	2.3
LABOUR FORCE ACTIVITY & INCOME			
1. LESS THAN HIGH SCHOOL			
Labour Force Participation Rate	37.9	50.6	1.3
Employment Rate	23.1	43.9	1.9
Unemployment Rate	38.9	13.3	0.3
Median Income	$9,694	$14,587	1.5
2. HIGH SCHOOL ONLY			
Labour Force Participation Rate	63.5	72.2	1.1
Employment Rate	46.3	65.1	1.4
Unemployment Rate	27.1	9.8	0.4
Median Income	$10,836	$16,834	1.6
Percent Above $20,000	15.5	29.2	1.9
Percent Above $40,000	1.8	5.0	2.8
3. NON-UNIVERSITY CERTIFICATE			
Labour Force Participation Rate	77.5	81.1	1.1
Employment Rate	58.5	74.2	1.3
Unemployment Rate	24.5	8.5	0.3
Median Income	$12,764	$19,277	1.5
4. UNIVERSITY DEGREE HOLDERS			
Labour Force Participation Rate	86.9	87.1	1.0
Employment Rate	76.9	82.3	1.1
Unemployment Rate	11.8	5.4	0.5
Median Income	$21,275	$30,016	1.4
Percent Above $20,000	50.6	62.6	1.2
Percent Above $40,000	12.6	29.5	2.3

	INDIANS(A)	NON-INDIANS(B)	RATIO(B/A)
UNIVERSITY DEGREE HOLDERS			
Controlling for Work Experience			
a) Aged 15-24 Years:			
Labour Force Participation Rate	90.6	88.0	1.0
Employment Rate	75.0	76.1	1.0
Unemployment Rate	17.2	13.5	0.8
Median Income	$ 8,158	$ 7,713	0.9
b) Age-Standardized, Off-Reserve:			
Labour Force Participation Rate	82.0	87.1	1.0
Employment Rate	71.8	82.3	1.1
Unemployment Rate	9.4	5.4	0.5
Median Income	$22,723	$28,996	1.4
Controlling for Labour Market Opportunity			
a) On-Reserve and Comparison non-Indians:			
Labour Force Participation Rate	88.3	86.2	1.0
Employment Rate	78.4	82.1	1.0
Unemployment Rate	11.9	4.7	0.4
Median Income	$21,276	$25,870	1.2
b) Provincially-Standardized, Off-Reserve:			
Labour Force Participation Rate	89.0	87.1	1.0
Employment Rate	78.2	82.3	1.0
Unemployment Rate	10.1	5.4	0.5
Median Income	$24,386	$28,996	1.2
Off-Reserve Population			
Labour Force Participation Rate	85.4	87.1	1.0
Employment Rate	76.0	82.3	1.1
Unemployment Rate	11.4	5.4	0.5
Median Income	$20,392	$28,996	1.4

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